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Economic  
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# Fruit and Vegetable Consumption

## Looking Ahead to 2020

Biing-Hwan Lin, [blin@ers.usda.gov](mailto:blin@ers.usda.gov), (202) 694-5458

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Rising income, higher educational attainment, improved diet and health knowledge, more frequent eating out, and a growing population that will become older and more diverse in race and ethnicity are all shaping U.S. agricultural consumption. These effects are analyzed using data from the 1994-96 and 1998 Continuing Survey of Food Intakes by Individuals. We then project the consumption of 25 food groups and 22 commodity groups, including various fruit and vegetable groups, to 2020.

Major findings on fruit and vegetable consumption summarized here are drawn from *Food and Agricultural Commodity Consumption in the United States: Looking Ahead to 2020*. The report offers more detail on study objectives, data, methodology, analytical limitations, and findings.

### At-Home Use Dominates Away-From-Home Use

With the exception of fried potatoes and potato chips, at-home use dominates away-from-home use for fruits and vegetables (table 1). Using 1994-98 data, the at-home market was estimated to account for about 90 per-



cent of fruit consumption in 2000, growing slightly to 90-92 percent in 2020. The at-home market share for vegetables ranges from 49 percent for fried potatoes and potato chips to 76 percent for tomatoes and to 82 percent for other potatoes. Little change in market distribution is predicted to 2020.

**Table 1—Growth of fruit and vegetable markets and shares of at-home and away-from-home markets, 2000 and 2020**

Commodity	Market growth: 2000 to 2020 <sup>1</sup>		Commodity market share			
			2000		2020	
	At home	Away	At home	Away	At home	Away
<i>Percent</i>						
<b>Fruit</b>						
Citrus	28	20	89	11	90	10
Apples	28	20	91	9	92	8
Grapes	24	20	91	9	91	9
Other fruit	27	22	90	10	90	10
<b>Vegetables</b>						
Fried potatoes and chips	5	10	49	51	48	52
Other potatoes	13	20	82	18	82	18
Tomatoes	19	20	76	24	76	24
Lettuce	22	26	57	43	56	44
Other vegetables	21	26	80	20	80	20

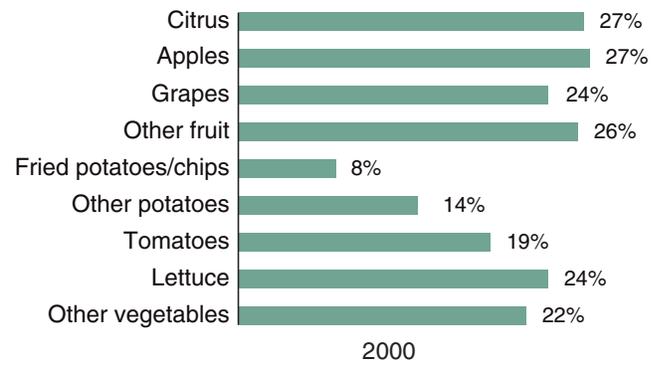
<sup>1</sup>Percentage increases in total U.S. consumption between 2000 and 2020.

### Income, Age, Race, and Education Are Major Factors

Between 2000 and 2020, total fruit consumption is predicted to grow by 24-27 percent because of increased per capita consumption and 50 million more consumers in the U.S. market (table 2). Per capita fruit consumption is predicted to grow between 5 and 8 percent because of higher income, aging of the U.S. population, higher educational achievement, and the influx of Hispanics and Asians.

With the exception of potatoes, per capita vegetable consumption is predicted to grow between 2000 and 2020. Per capita consumption of fried potatoes and potato chips is

### Predicted market growth, 2000 to 2020



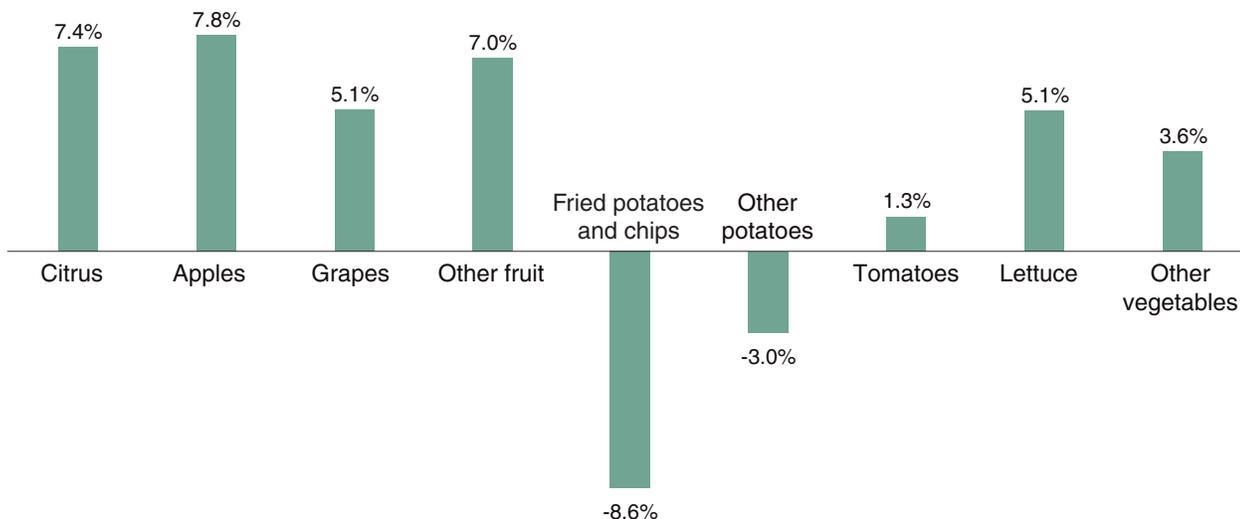
Source: Economic Research Service.

**Table 2—Effects on fruit and vegetable consumption, 2000 to 2020**

Commodity	Total market <sup>1</sup>	Per capita effects							
		Net	Income	Age	Region	Urbanization	Race	Household type	Education
<i>Percent</i>									
<b>Fruit</b>									
Citrus	26.68	7.40	1.87	0.48	-0.62	0.45	2.48	0.61	2.13
Apples	27.20	7.84	1.93	0.95	-0.55	0.47	2.42	0.47	2.14
Grapes	24.00	5.13	1.23	0.59	-0.45	0.40	1.35	0.31	1.69
Other fruit	26.21	7.00	1.48	1.96	0.06	0.50	1.33	0.06	1.61
<b>Vegetables</b>									
Fried potatoes and chips	7.81	-8.60	0.19	-5.76	0.06	-0.33	-1.72	-0.21	-0.82
Other potatoes	14.45	-2.97	-1.86	3.18	-0.76	-0.50	-2.19	-0.94	0.12
Tomatoes	19.43	1.25	0.86	-0.75	0.11	0.08	0.88	-0.10	0.18
Lettuce	23.96	5.09	2.12	0.68	0.10	0.26	0.37	0.84	0.71
Other vegetables	22.21	3.61	0.65	1.34	-0.04	0.14	0.54	0.41	0.57

<sup>1</sup>Total market shows total U.S. consumption, reflecting an additional 50 million consumers by 2020

### Percentage change in per capita fruit and vegetable consumption, 2000 to 2020



Source: Economic Research Service.

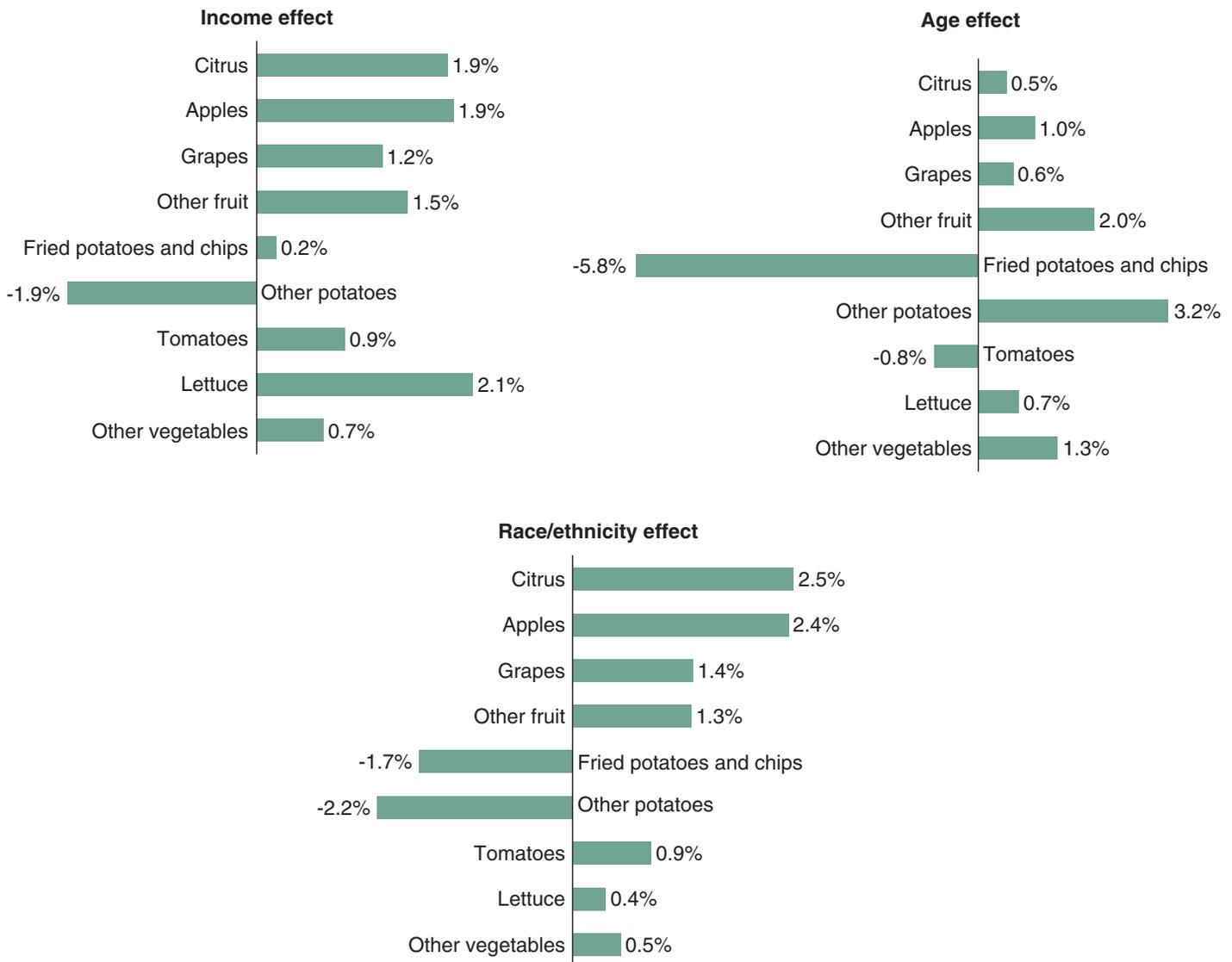
predicted to fall by almost 9 percent because of aging, changing racial/ethnic composition, and higher education and dietary knowledge. While aging favors consumption of other potatoes (mainly baked), income growth and changing racial/ethnic composition are predicted to lower the consumption of other potatoes.

Rising income and more Hispanics favor tomato consumption, but older Americans consume fewer tomatoes (likely because of eating less ketchup that goes with French fries) (fig. 4). Lettuce leads growth in vegetable consumption, thanks to rising income and all other social/demographic factors. Per capita consumption of other vegetables is also expected to grow during the next two decades.

### Income Plays Two Roles

Income is found to directly affect fruit and vegetable consumption, and it also affects eating out and dietary knowledge—which in turn affect fruit and vegetable consumption (table 3). Higher income leads to more eating out and better dietary knowledge. While knowledge leads to more fruit consumption, eating out lowers fruit consumption. On the other hand, eating out increases and knowledge decreases the consumption of fried potatoes and potato chips. The largest income effect is for lettuce, with positive direct and indirect income effects.

Effects of income, age, and race on per capita fruit and vegetable consumption, 2000 to 2020



Source: Economic Research Service.

### Eating Out Cancels Out Knowledge

There are two offsetting factors in the consumption of fruits and vegetables. With higher educational attainment, consumers are equipped with better dietary knowledge and hence consume more fruits and vegetables, except fried potatoes and chips. Meanwhile, eating out has grown more frequent over the past three decades, and should continue to

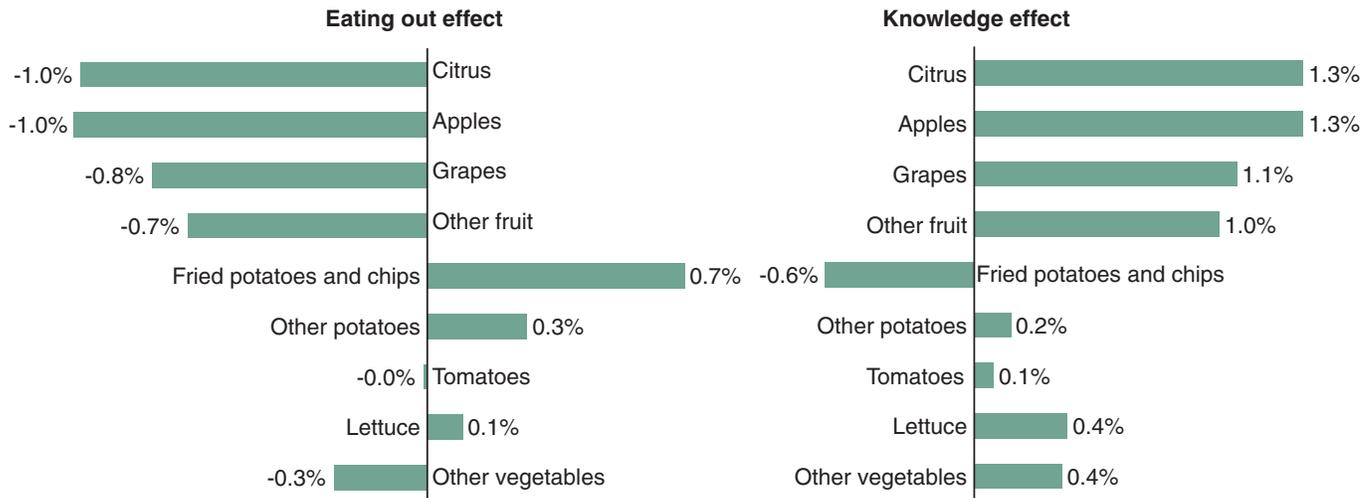
do so. This is expected to lower fruit consumption, but increase consumption of all potatoes and lettuce.

### Information Source

Lin, Biing-Hwan, Jayachandran N. Variyam, Jane Allshouse, and John Cromartie. *Food and Agricultural Commodity Consumption in the United States: Looking Ahead to 2020*, USDA/ERS, AER-820, Feb. 2003.

Commodities	Total income effect	Direct income effect	Indirect income effect	
			Eating out	Knowledge
<i>Percent</i>				
<b>Fruit</b>				
Citrus	1.87	1.85	-1.77	1.83
Apples	1.93	1.95	-1.81	1.81
Grapes	1.23	1.21	-1.42	1.48
Other fruit	1.48	1.36	-1.22	1.36
<b>Vegetables</b>				
Fried potatoes and chips	0.19	-0.47	1.75	-1.08
Other potatoes	-1.86	-2.53	0.49	0.19
Tomatoes	0.86	0.76	-0.01	0.11
Lettuce	2.12	1.42	0.18	0.50
Other vegetables	0.65	0.63	-0.46	0.47

### Effects of eating out and dietary knowledge on per capita fruit and vegetables consumption, 2000 to 2020



Source: Economic Research Service.

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